In the claims:

In compliance with the practice guidelines for making amendments, Applicants present all pending claims with status indicators.

1. (ORIGINAL) A mammalian lipo-derived stem cell substantially free of mature adipocytes.

2. (CANCELLED)

3. (PREVIOUSLY PRESENTED) The cell of claim 1, which has two or more developmental phenotypes selected from the group of developmental phenotypes consisting of adipogenic, chondrogenic, cardiogenic, dermatogenic, hematopoetic, hemagiogenic, myogenic, nephrogenic, urogenitogenic, osteogenic, pericardiogenic, periteogenic, pleurogenic, and stromal and developmental phenotypes.

4. (PREVIOUSLY PRESENTED) The cell of any of claims 1, which is human.

5. (PREVIOUSLY PRESENTED) The cell of any of claims 1, which is genetically modified.

6. (PREVIOUSLY PRESENTED) The cell of any of claims 1, which has a cell-surface bound intercellular signaling moiety.

7. (PREVIOUSLY PRESENTED) The cell of any of claims 1, which secretes a hormone.

8. (ORIGINAL) The cell of claim 7, wherein the hormone is selected from the group of hormones consisting of cytokines and growth factors.

9. (PREVIOUSLY PRESENTED) A defined cell population comprising a cell of claim 1.

10. (ORIGINAL) The defined cell population of claim 9, which is heterogeneous.

11. (PREVIOUSLY PRESENTED) The defined cell population of claim 9, further comprising a stem cell selected from the group of cells consisting of neural stem cells (NSC), hematopoetic stem cell (HPC), embryonic stem cells (ESC), and mixtures thereof.

12. (PREVIOUSLY PRESENTED) The defined cell population of claim 9, which consists essentially of the mammalian lipo-derived stem cells.

13. (PREVIOUSLY PRESENTED) The defined cell population of claim 9, which is substantially homogenous.

14-35. (CANCELLED)

36. (PREVIOUSLY PRESENTED) A method of obtaining a genetically-modified cell comprising exposing the cell of claim 1 to a gene transfer vector comprising a nucleic acid including a transgene, whereby the nucleic acid is introduced into the cell under conditions whereby the transgene is expressed within the cell.

37. (ORIGINAL) The method of claim 36, wherein the transgene encodes a protein conferring resistance to a toxin.

38. (PREVIOUSLY PRESENTED) A method of delivering a transgene to an animal comprising (a) obtaining a genetically-modified cell in accordance with claim 36 and (b) introducing the cell into the animal, such that the transgene is expressed in vivo.

39. (CURRENTLY AMENDED) A method of differentiating ~~the cell of claim 1~~ an isolated adipose-derived stem cell that differentiates into cells of:

a. Mesodermal and endodermal phenotypes;

b. Mesodermal and ectodermal phenotypes;

c. Endodermal and ectodermal phenotypes;

d. Ectodermal phenotype;

e. Endodermal phenotype; or

f. Mesodermal, endodermal and ectodermal phenotypes

comprising culturing the cell in a morphogenic medium under conditions sufficient for the cell to differentiate.

40. (PREVIOUSLY PRESENTED) The method of claim 39, wherein the medium is an adipogenic, chondrogenic, cardiogenic, dermatogenic, embryonic, fetal, hematopoetic, hemangiogenic, myogenic, nephrogenic, urogenitogenic, osteogenic, pericardiogenic, peritoneogenic, pleurogenic, or stromogenic media.

41. (PREVIOUSLY PRESENTED) The method of claim 39, wherein the morphogenic medium is an adipogenic medium and the cell is monitored to identify adipogenic differentiation.

42. (PREVIOUSLY PRESENTED) The method of claim 39, wherein the morphogenic medium is a chondrogenic medium and the cell is monitored to identify chondrogenic differentiation.

43. (PREVIOUSLY PRESENTED) The method of claim 39, wherein the morphogenic medium is an embryonic or fetal medium and the cell is monitored to identify embryonic or fetal phenotype.

44. (PREVIOUSLY PRESENTED) The method of claim 39, wherein the morphogenic medium is a myogenic medium and the cell is monitored to identify myogenic differentiation.

45. (PREVIOUSLY PRESENTED) The method of 39, wherein the morphogenic medium is an osteogenic medium and the cell is monitored to identify osteogenic differentiation.

46. (PREVIOUSLY PRESENTED) The method of claim 39, wherein the morphogenic medium is a stromal medium and the cell is monitored to identify stromal or hematopoetic differentiation.

47. (PREVIOUSLY PRESENTED) The method of claim 39, wherein the cell differentiates in vitro.

48. (PREVIOUSLY PRESENTED) The method of claim 39, wherein the cell differentiates in vivo.

49. (PREVIOUSLY PRESENTED) A method of producing hormones, comprising (a) culturing the cell of claim 7 within a medium under conditions sufficient for the cell to secrete the hormone into the medium and (b) isolating the hormone from the medium.

50. (PREVIOUSLY PRESENTED) A method of promoting the closure of a wound within a patient comprising introducing the cell of claim 7 into the vicinity of a

wound under conditions sufficient for the cell to produce the hormone, whereby the presence of the hormone promotes closure of the wound.

51. (PREVIOUSLY PRESENTED) A method of promoting neovascularization within tissue, comprising introducing the cell of claim 7 into the tissue under condition sufficient for the cell to produce the hormone, whereby the presence of the hormone promotes neovascularization within the tissue.

52. (ORIGINAL) The method of claim 51, wherein the tissue is within an animal.

53. (PREVIOUSLY PRESENTED) The method of claim 51, wherein the tissue is a graft.

54. (PREVIOUSLY PRESENTED) The method of claim 49, wherein the hormone is a growth factor selected from the group of growth factor consisting of human growth factor, nerve growth factor, vascular and endothelial cell growth factor, and members of the TGFβ superfamily.

55. (PREVIOUSLY PRESENTED) A method of conditioning culture medium comprising exposing a cell culture medium to the cell of claim 1 under conditions sufficient for the cell to condition the medium.

56. (ORIGINAL) The method of claim 55, wherein the medium is separated from the cell after it has been conditioned.

57. (CURRENTLY AMENDED) The method of claim ~~36, 38,~~ 39, ~~49, 50, 51 or 55~~, wherein the cell is within a defined cell population.

58. (PREVIOUSLY PRESENTED) A conditioned culture medium produced in accordance with the method of claim 55.

59. (PREVIOUSLY PRESENTED) The conditioned culture medium of claim 58, which is substantially free of the mammalian lipo-derived stem cell.

60. (PREVIOUSLY PRESENTED) A method of culturing a stem cell comprising maintaining a stem cell in the conditioned medium of claim 58 under conditions for the stem cell to remain viable.

61. (ORIGINAL) The method of claim 60, which further comprises permitting successive rounds of mitotic division of the stem cell to form an expanded population of stem cells.

62. (PREVIOUSLY PRESENTED) The method of claim 60, wherein the medium is substantially free of the mammalian lipo-derived stem cells.

63. (PREVIOUSLY PRESENTED) The method of claim 60, wherein the medium contains the mammalian lipo-derived stem cells.

64. (PREVIOUSLY PRESENTED) The method of claim 63, wherein a stem cell and the mammalian lipo-derived stem cell are in contact.

65. (PREVIOUSLY PRESENTED) The method of claim 60, wherein a stem cell is a hemopoetic stem.

66-72. (CANCELLED)

73. (PREVIOUSLY PRESENTED) An implant comprising the cell of claim 1.

74. (PREVIOUSLY PRESENTED) An implant comprising the population of claim 9.

75-76. (CANCELLED)

77. (ORIGINAL) A kit for isolating stem cells from adipose tissues comprising a means for isolating adipose tissue from a patient and a means for separating stem cells from the remainder of the adipose tissue.

78. (ORIGINAL) The kit of claim 77, further comprising a medium for differentiating the stem cells.

79. (PREVIOUSLY PRESENTED) The kit of claim 78, wherein the medium is selected from the group of media consisting of adipogenic, chondrogenic, cardiorgenic, dermatogenic, embryogenic, fetal, hematopoetic, hemangiogenic, myogenic, nephrogenic, urogenitogenic, osteogenic, pericardiogenic, peritoneogenic, pleurogenic, and and stromogenic media.

80-131.(CANCELLED)

132. (ORIGINAL) A method of isolating stem cells from adipose tissues comprising isolation adipose tissue from a patient and separating stem cells from the remainder of the adipose tissue.

133. (ORIGINAL) The method of claim 132, further comprising differentiating the stem cells.

134. (ORIGINAL) The method of claim 133, wherein the stem cells are differentiated into one or more precursor cell types.

135. (ORIGINAL) The method of claim 134, wherein one or more precursor cell types is selected from the group of precursor cell types consisting of preadipocytes, premyocytes, and preosteocytes.

136. (ORIGINAL) The method of claim 133, wherein the stem cells are differentiated into one or more mature cell types.

137. (PREVIOUSLY PRESENTED) The method of claim 134, wherein one or more cell types is selected from the group of cell types selected from the group of cell types consisting of adipocytes, chondrocytes, dermal connective tissue cells, hemangial cells tissues, myocytes, osteocytes, urogenital cells, pleural and peritoneal cells, visceral cells, mesodermal glandular cells, and stromal cells.

138. (ORIGINAL) The method of claim 132, wherein the adipose tissue is liposuction effluent.

139. (PREVIOUSLY PRESENTED) An isolated adipose-derived stem cell (ADSC).

140. (PREVIOUSLY PRESENTED) The stem cell of claim 139, that is multipotent.

141. (PREVIOUSLY PRESENTED) The stem cell of claim 139, that differentiates into a mesodermal tissue.

142. (PREVIOUSLY PRESENTED) An adipose-derived stem-cell enriched fraction (ADSC-EF) of an adipose tissue sample from a subject, said fraction substantially free of adipocytes.

143. (PREVIOUSLY PRESENTED) The stem cell of claim 139 which is human.

144. (PREVIOUSLY PRESENTED) The stem cell of claim 139, which is genetically modified.

145. (PREVIOUSLY PRESENTED) A defined cell population comprising a plurality of the cell of claim 139.

146. (PREVIOUSLY PRESENTED) The defined cell population of claim 145 which is homogenous.

147. (PREVIOUSLY PRESENTED) The defined cell population of claim 145 which is heterogeneous.

148. (PREVIOUSLY PRESENTED) A progeny cell of the stem cell of claim 141, committed to develop into a mesodermal cell.

149. (PREVIOUSLY PRESENTED) Tissue comprised of the stem cell of claim 141, and differentiated mesodermal cells.

150. (PREVIOUSLY PRESENTED) A method of inducing mesodermal tissue comprising culturing the stem cell of claim 141 in a mesoderm-inducing medium.

151. (PREVIOUSLY PRESENTED) A method of forming tissue in a subject comprising introducing the progeny cell of claim 139 or 148 into a subject in a sufficient amount to form mesodermal tissue in said subject.

152. (PREVIOUSLY PRESENTED) A method of regenerating or repairing tissue in a subject comprising introducing a stem cell of claim 139 into a subject in a sufficient amount to regenerate or repair tissue.

153. (PREVIOUSLY PRESENTED) A method for obtaining an adipose-derived stem cell-enriched fraction (ADSC-EF) comprising treating a sample of adipose tissue from a subject to remove adipocytes forming an adipose-derived stem-cell-enriched fraction (ADSC-EF).

154. (PREVIOUSLY PRESENTED) The adipose-derived stem-cell enriched-fraction (ADSC-EF) obtained by the method of claim 153.

155. (PREVIOUSLY PRESENTED) The adipose-derived stem cells (ADSCs) obtained by separating said cells from the ADSC-EF of claim 154.

156. (PREVIOUSLY PRESENTED) The stem cells of claim 155, wherein said stem cells are multipotent.

157. (PREVIOUSLY PRESENTED) The stem cells of claim 156, wherein said stem cell differentiate into a mesodermal tissue.

158. (PREVIOUSLY PRESENTED) Progeny of the stem cell of claim 140.

159. (PREVIOUSLY PRESENTED) A method of delivering a transgene to an animal comprising introducing the stem cell of claim 139 containing a selected transgene into a subject, such that the transgene is expressed in the subject.

160. (PREVIOUSLY PRESENTED) A method of inducing the differentiation of the cell of claim 139, comprising culturing the cell in a suitable medium effective to induce differentiation under suitable differentiation conditions.

161. (PREVIOUSLY PRESENTED) The method of claim 160 wherein said medium is a conditioned medium of a specific cell type.

162. (PREVIOUSLY PRESENTED) A method of inducing the differentiation of the cell of claim 139, comprising co-culturing the cell with a cell of desired lineage.

163. (PREVIOUSLY PRESENTED) A method of conditioning culture medium comprising contacting the medium with the cell of claim 139.

164. (PREVIOUSLY PRESENTED) The cultured medium obtained by the method of claim 168.

165. (PREVIOUSLY PRESENTED) A kit for obtaining adipose-derived stem cells (ADSCs) from adipose tissues of a subject comprising means for separating the ADSCs from the adipose tissue.

166. (PREVIOUSLY PRESENTED) The kit of claim 165, further comprising a device for isolating adipose tissue from a subject.

167. (PREVIOUSLY PRESENTED) The kit of claim 165, further comprising a medium for inducing differentiation of the adipose-derived stem cells.

168. (PREVIOUSLY PRESENTED) The kit of claim 165, further comprising a medium for culturing the ADSCs.